

**Claims:**

1. Fire resistant polyolefin blends which comprise of a blend of (i) a polyolefin base polymer (ii) melamine or its derivative (iii) a flame retardant and (iv) a compatibilizer all put together constitute 100 wt% of the blend.  
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2. Blends as claimed in claim 1, wherein the said polyolefin comprises polypropylene homopolymer, polyethylene, more preferably a high density polyethylene, random as well as block copolymers of propylene and ethylene.
3. Blends as claimed in claim 1, wherein the said polyolefin polymer has a melt flow index in the range of 12 to 40 g/10min. when tested at 230<sup>0</sup>C at 2.16 kg load (according to ASTM D1238).  
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4. Blends as claimed in claim 1, wherein the said melamine derivative is selected from melamine cyanurate or melamine phosphate.
5. Blends as claimed in claims 1 to 4, wherein the said melamine or its derivative is present in the concentration range 10 to 50 wt%.  
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6. Blends as claimed in claims 1 to 5, wherein the said flame retardant is selected from magnesium hydroxide and / or aluminum trihydroxide, zinc borate and ammonium phosphate.
7. Blends as claimed in claims 1 to 6, wherein the said flame retardant is present in the concentration range of 2 to 10 wt%.  
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8. Blends as claimed in claims 1 to 7, wherein the said compatibilizer comprises a maleic anhydride grafted polypropylene (MAH-g-PP) or an organo silane.
9. Blends as claimed in claims 1 to 8, wherein the said compatibilizer is present in an amount from 0 to 10-wt%.
- 25 10. Blends as claimed in any preceding claim, wherein a processing aid such as a fluoroelastomer is present in the concentration range of 1 to 2 wt% over and above the total blend.
11. Blends as claimed in above claims, wherein an antioxidant is present in the concentration range of 0-3 wt% over and above the total blend.
- 30 12. A process for preparation of fire-resistant polyolefin blends, which comprise melt mixing of a polyolefin, melamine or its derivative, a flame retardant and a compatibilizer in a Buss co-kneader or a twin screw extruder.

13. A process as claimed in claim 12, wherein the said polyolefin comprises a polypropylene homopolymer, polyethylene, more preferably a high-density polyethylene, random as well as block copolymers of propylene and ethylene.
14. A process as claimed in claim 12, wherein the said polyolefin polymer has a melt flow index in the range of 12 to 40 g/10min. when tested at 230°C at 2.16 kg load (according to ASTM D1238).
15. A process as claimed in any one of claims 12 to 14, wherein the said melamine derivative is selected from melamine cyanurate or melamine phosphate.
16. A process as claimed in any one of claims 12 to 15, wherein the said melamine or its derivative is present in the concentration range 10 to 50 wt%.
17. Processes as claimed in any one of claims 12 to 16, wherein said flame retardant is selected from magnesium hydroxide and / or aluminum trihydroxide, zinc borate and ammonium phosphate.
18. A process as claimed in any one of claims 12 to 17, wherein the said flame retardant is present in the concentration range of 2 to 10 wt%.
19. A process as claimed in any one of claims 12 to 18, wherein the said compatibilizer comprises a maleic anhydride grafted polypropylene (MAH-g-PP) or an organo silane.
20. A process as claimed in any one of claims 12 to 19, wherein the said compatibilizer is present in an amount from 0 to 10-wt%.
21. A process as claimed in any one of claims 12 to 20, wherein said melt mixing is carried out at a temperature in the range of 180 to 250°C in a Buss co-kneader or a twin screw extruder.
22. A process as claimed in claim 21, wherein said kneader / extruder speed is 50 to 100 rpm.
23. An article of manufacture whenever made of a fire-resistant polypropylene blend as claimed in any one of claims 1 to 11.